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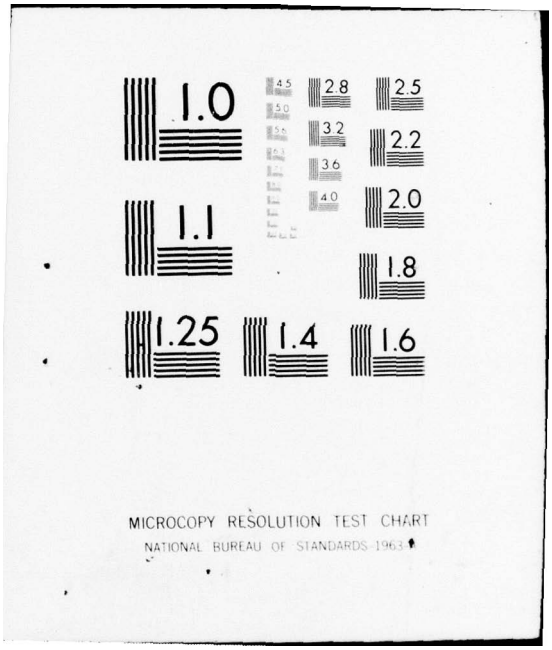
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Special Report 78-2

ARCHITECTURAL PROGRAMMING

MAKING SOCIALLY RESPONSIVE ARCHITECTURE MORE ACCESSIBLE

C. Burgess Ledbetter

March 1978

CORPS OF ENGINEERS, U.S. ARMY
COLD REGIONS RESEARCH AND ENGINEERING LABORATORY
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This report introduces, for the layperson, the new field of architectural programming. The view of architecture as a fine art of style and aesthetics is criticized. Architectural programming is offered as one means of changing this view of architecture to that of a combination of art and social science.

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Preface

This report was prepared by C. Burgess Ledbetter, Research Architect, of the Applied Research Branch, Experimental Engineering Division, U.S. Army Cold Regions Research and Engineering Laboratory. Funding was provided by DA Project 4A762730AT42, Design, Construction and Operations Technology for Cold Regions, Technical Area A3, Facilities Technology/Cold Regions, Work Unit 005, Habitability of Cold Regions Military Facilities.

This report is written to familiarize the layperson with the emerging field of architectural programming.

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ARCHITECTURAL PROGRAMMING: Making Socially Responsive Architecture More Accessible

by

C. Burgess Ledbetter

Introduction

The following quote from Heimsath (1977) initiates the thrust of this paper on the interrelationship of architecture and society:

> On 1973, an event occurred that was televised around the world. A 12-story building at a public housing project, a black crises ghetto, Pruitt-Igoe in St. Louis, was blown up, not by frustrated blacks but by the Department of Housing and Urban Development (HUD) of the United States Government. The experience had a particular impact for me, for I witnessed the action standing on the twelfth floor of an adjacent building with tenant representatives from the remaining housing projects in St. Louis. A spontaneous shout went up as the building collapsed and everyone clapped. It seemed briefly a festive moment and perhaps it was. Symbolically, it represented an end to the brave new world of public housing. [See Fig. 1.]

Figure 1. St. Louis housing project being demolished (UPI).

How can we have "progressed" to the point of heroically destroying buildings, especially buildings such as those at Pruitt-Igo that cost in the millions of dollars when built in 1957 and was awarded with numerous forms of recognition as an architectural masterpiece and solution to mass housing? This paper, rather than tracing the historical steps leading to this calamity, will explore conditions existing today in the architectural delivery system that allow errors and oversights such as Pruitt-Igoe to occur. In the latter portion of the paper, one partial solution to the problem that is emerging from the architectural profession will be presented.

Problem

Institutional facilities such as low-income mass housing produced by the government, middle income tract housing produced by private conglomerates and ordinary developers, and both private and governmental hospitals, office buildings, prisons, etc., are all remarkably similar. Mass production and shipping systems allow designers to select from one file (Sweet's Catalogue) virtually all components for all types of buildings. A bathroom in a remote desert region of Australia is identical to the bathroom in downtown New York City. It is also likely that the bathroom fixtures for both locations are made by the same manufacturer (for example, American Standard).

Economics of mass production allow us to enjoy the conveniences of indoor porcelain bathrooms but also result in situations in which mistakes in design are multiplied beyond possible correction, like the need for most people throughout the modern world to "jiggle the toilet." Entire buildings emerge from the architectural profession in the same way that toilets emerge from American Standard. Efforts to determine the design most responsive to a majority of the users' needs are often ignored on the pretext that people will adapt to undesirable situations or that the architects and developers know what is good for "the people" better than they themselves do. The arguments often used are that people have already been living under adverse conditions for a long time, and that the means to obtain user-needs information do not exist.

Pruitt-Igoe was first destroyed by its inhabitants. They vandalized the structures and made habitation impossible. To try to revive its utility, many buildings were then destroyed and removed by the government. What contributed to the failure of the architecture? Does architecture have anything to do with the social problems? The following examples demonstrate the influence architecture can have on occupant behavior.

Results of the Bechtel and Ledbetter (1976) and Ledbetter (1974a) study in cold regions show direct relationships between the design of facilities and communities and the behavior of the occupants. Antisocial behavior such as alcohol abuse, marital and parent-child conflict, wife-swapping, voluntary isolation, etc., frequently occurred in

the Alaskan communities. The inclement weather forced the occupants to rely heavily on the man-made environment, which in many instances did not respond to the needs of the occupants. The weather only exacerbated the conditions of reliance on the poorly designed man-made environment.

Cabin fever is the term often used to describe the depression that people, mostly wives, suffer in remote areas. The depression comes from prolonged isolation in undesirable physical settings (Ledbetter 1974a). The condition is self-perpetuating; the longer one stays isolated, the more the person rationalizes remaining isolated. What little social contact occurring is usually between the isolated wife and her husband (who, incidently, sees others at work) whom she blames for her intolerable life style. The children underfoot further aggravate her frustration. Increased and controlled social contact with other community occupants is one significant partial solution to the problems of cabin fever. Architectural arrangements of spaces (sometimes alone but most often in conjunction with operational characteristics) significantly influence utilization of activities and social contact.

Take, for example, the comparison of officers' lounges in three remote Air Force stations in Alaska (Bechtel and Ledbetter 1976). The populations of the stations were nearly the same, the occupants were computer-selected and therefore, nearly random, the amenities offered in the lounges were similar (furnishings, square footage, decor, and cost of drinks) and all of the occupants of the lounges were male. The difference between the lounges was in their orientation to the corridors. In Figure 2 (from Ledbetter 1974b) it can be seen that the voluntary utilization of the lounges was dramatically different.

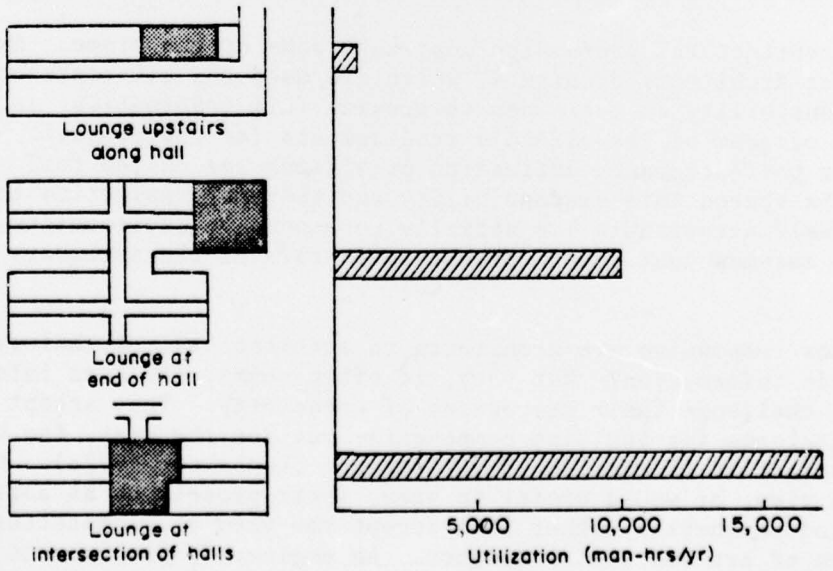

Figure 2. Utilization of officers' lounges at remote Air Force AC&W stations.

The lounge along the hallway was seldom used and the lounge at the end of the corridor was utilized significantly less than the very successful one at the intersection of hallways (time to walk through the lounge was negligible). The design principle illustrated here is that of a "focal point." People gravitate toward a focal point or space in which they can see and be seen. There is no social commitment that must be made to enter the lounge at the intersection of hallways. As a result, it is more conducive to visits than the other two arrangements of lounges where a decision must be made to enter or not.

Principles of architectural psychology such as focal points are becoming increasingly known to architects. Principles such as these are easily determined by trained investigators. Building occupants, if individually questioned by trained investigators, can often provide valuable insights for the design of a new building. These occupants can actually design their own "piece of the puzzle" which can then be put together into a cohesive plan by the architect. In cases where the future occupants are unknown, surrogate users and organizations can be investigated.

With the groundwork of numerous socially conscious architectural design principles and methods of investigating occupant needs, why is the environment studded with so many Pruitt-Igoes and flaws of mass building too numerous to list in this paper? As an architect, I would prefer to blame entrepreneurs who build for maximum profit, who quickly sell the projects they build and thus wash their hands of the social problems that breed in the projects. Or, I would like to blame the government which has no systematic means of obtaining feedback from the occupants who use the new projects and which puts the blame on poor management or the incorrigible nature of the occupants.

The architectural profession must take some of the blame. American Institute of Architects documents, which are used for all contracts, place responsibility on the owner to provide full information, including a complete program of the client's requirements for the project. No feedback or post-occupancy evaluation provisions are called for. The architect is spared this responsibility and therefore maintains that he cannot be held accountable for socially unresponsive environments. Yet, the client assumes that the architect takes care of the necessary social needs.

But how responsive are architects to architectural psychology or social needs information? Not very, it often seems, for such information can challenge their perception of creativity. They accept the Sweet's Catalogue for building components, but for the most, the behavioral scientist is considered an intruder (Ledbetter 1977a). Most architects view, or would prefer to view, their profession as a fine art of style and aesthetics rather than accept the view of architecture as a combination of art and social science. An engineer's involvement is acceptable for structural concerns; likewise a behavioral scientist wants to bring in scientific measurement techniques for social concerns.

But this is felt to be in conflict with the architect's view of art and "engineering integrity" as the primary influences acceptable for design. Besides, the architect maintains, people are highly adaptable, so why all the concern for social issues?

Architects recognize but appear helpless when confronted with the publicity of failures such as Pruitt-Igoe. This is perhaps due to the limited efforts of post-occupancy evaluation. Heimsath (1977) illustrates this situation in the following quote regarding engineering aspects of buildings compared with social issues:

> If a building leaks and the occasional review board visiting a building notices such leaks, it is an anxious moment for an architect although more often than not he has no responsibility for the leak. Whether or not the building is a positive or negative environment in human terms is difficult to compute in strictly visual terms, so the leak becomes more important than the social quality.

Solution

What is a solution to the problems of the architectural profession's inability or unwillingness to respond to social quality? Efforts are underway in HUD, GSA, Corps of Engineers and other major builders of institutional architecture to incorporate a predesign process similar to that used by the Canadian Government into their design procedures. This process, called architectural programming, puts the responsibility of developing the program for design in the hands of professionally trained and specialized architects and behavioral scientists. The client and potential users of the new projects work diligently with these specialists, often before the architect is even hired.

Sometimes no architect is required, for a new building may not be required. A reorganization of the existing layout may solve the operational problems that the client assumes can only be solved by a new and larger building (Ledbetter 1977b). More often, however, a new or renovated structure is required.

The programmer, who works directly with the client and potential occupants, develops the program and participates in the design and review stages until construction begins. The programmer may assist in the moving-in process and "fine tuning" the arrangement of people and furnishings. Following 6 to 12 months of occupancy, the programmer may conduct a post-occupancy evaluation to test the degree to which the building meets expectations. This information forms the basis for future programs on similar buildings and provides information for updating methods of investigation for developing the programs. In this way the profession can systematically build upon past design experiences to continually improve the quality of architecture.

Conclusion

Some architects are bridging the gap between the art form mind-set of the architect and the analytical approach of the behavioral scientist (Ledbetter 1977a). Architectural programmers, some in practice, some in research and others in teaching, are developing methods of investigating occupant needs, developing architectural design principles, persuading architects to use this information and publicizing the failures of a strictly art form and engineering approach to architecture. A goal may be to have socially responsive architecture as accessible to the building delivery system as building components are in the Sweet's Catalogue sitting on the architect's book shelf. Engineering technology and business economics have allowed, perhaps even encouraged, the art form approach to architecture to extend beyond its ability to respond to society's needs, resulting in buildings that need "jiggling."

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